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ABSTRACT

The academic persistence of undergraduate students at Arizona State University was studied. Demographic and academic profiles were developed, and persistence rates were calculated for the overall population of 3,166 freshmen, and by gender and ethnicity. Additional demographic variables were residency status and age. The academic variables included major, composite American College Testing (ACT) score, rank in high school graduating class, first semester grade point average (GPA), last semester of attendance, and cumulative earned hours. Forty-seven percent ranked in the top two deciles of their high school graduating classes; 84 percent ranked in the upper half. Almost 75 percent earned a GPA above 2.0 during their first semester, and the most popular major was business. Of the 1,625 males in the study population, 571 persisted to graduation by fall semester 1981, and an additional 138 persisted but failed to graduate. Among the 1,541 females there were 562 persisters, 435 graduates and 127 nongraduates. Graduates and persisters were on the average slightly younger and also had higher average high school ranks, ACT composite scores, and first semester GPAs. Among those majors enrolling more than 75 students, the highest combined rates of persistence and graduation were in engineering, architecture, biological science, business, communication, and health science. Asians achieved the highest combined persistence rate (63 percent). Among the important indicators of persistence were previous academic performance and first semester GPA. Other factors that should be considered include whether students have clear academic objectives and the needs of minorities. (SW)

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September 1982

DEPARTMENT OF HIGHER AND ADULT EDUCATION
COLLEGE OF EDUCATION
ARIZONA STATE UNIVERSITY

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Persistence of Undergraduate Students at Arizona State University

Aspects of the academic persistence of Arizona State University students have been examined in several studies (Parker, 1981; Richardson and Doucette, 1980; Churchill et al., 1976; Iwai, Churchill and Baron, 1977; Iwai and Churchill, 1978). Yet baseline data on the persistence behavior of a single population, including the demographic and academic characteristics of the population disaggregated by persistence status, over a five-year period is lacking. The purpose of the present study was to provide such baseline data.

Specifically, the authors used the University's computerized Student Master File Data base to:

(1) develop a demographic and academic profile of entering freshmen in the Fall semester of 1976--the Study Population;

(2) calculate overall persistence rates for the Study Population and persistence rates by gender and by ethnicity; and,

(3) develop demographic and academic profiles of the sub-populations in the various persistence categories.

Nature of the Study Population and the Analysis of the Data

The Study Population--the data base for this study--was composed of individuals who: (1) had earned fewer than ten hours of semester credit prior to the Fall semester of 1976 and (2) were enrolled for twelve or more hours of semester credit at Arizona State University in the Fall semester of 1976. Information on a number of demographic and academic variables was retrieved from the student data files retained in the University's computerized Student Master File Data Base. The demographic variables included: (1) gender, (2) residency status, (3) ethnicity and (4) age. The academic variables in the study were: (1) area of academic major, (2) composite ACT score (ACT scores are not part of the Student Master File and had to be obtained from the files in the Registrar's Office), (3) rank in high school graduating class, (4) first semester (Fall, 1976) grade point average (GPA), (5) last semester of attendance and (6) cumulative earned hours.

Definitions

No definition of academic persistence is wholly satisfactory. Because any former student can return to college to complete a degree at any point in his or her lifetime, any definition of persistence that results in the classification of an individual as a non-persister prior to his or her death is, to some extent, deficient. Yet, it would be highly impractical and, for most purposes, without profit to conduct a longitudinal study of a college-going cohort in which every person in the cohort was followed until degree completion or death. The present study dealt with this problem by employing arbitrary, but logical, categories of academic persistence.

(1) Non-persisters: Students in the Study Population who were not enrolled at Arizona State University in the Fall semester of 1981 and had not earned 124 semester hours of credit by that semester.

(2) Non-graduate Persisters: Students in the Study Population who were enrolled at Arizona State University in the Fall semester of 1981 or had accumulated 124 semester hours by that semester but had not graduated.

(3) Graduates: Students in the Study Population who had earned a bachelors degree by the Fall of 1981.

The method used to calculate rates of persistence and degree attainment was straight forward. The number of persisters and graduates, or the number of graduates alone, was divided by the initial number of students in the population or subpopulation of interest.

Characteristics of the Study Population

The number of students meeting the criteria for inclusion in the study population was 3,166. Summary characteristics of the study population appear in Table 1.

More than 92 percent of the Study Population were less than 19 at the time they entered Arizona State. Eighty-four percent ranked in the upper half of their high school graduating classes with more than 47 percent in the top two deciles. Sixty-three percent of those for whom ACT scores were available (all but 295) had scores of 21 or above. Thirteen percent had scores of less than 16.

Almost 75 percent of these students earned a grade point average above 2.0 during their first semester of work. The most popular major was business with almost 1 in 5 of all enrolled students. Other academic majors selected by more than 100 students included by percentage of total enrollment: Fine Arts

(8.3), Social Science (7.8), Engineering (7.5), Education (7.0), Health Science (6.8), Biological Science (4.7), Communication (4.3) and Architecture (3.3). Over 14 percent or 455 students were undecided about their academic majors.

The composite profile of the 1976 entering class suggests a well qualified and predominantly traditional student population, who performed at a reasonably satisfactory level during their first semester at ASU. The question addressed in the next section of this report is how well did these students perform in terms of achieving or continuing to progress toward the baccalaureate five years after entrance.

Persistence and Degree Attainment

Disaggregation of the Study Population on the basis of persistence status yields sub-populations with the characteristics reported in Table 2. Several findings emerge from analysis of this data.

1. A majority of the Study Population failed to persist on the basis of the criteria defined for this study.

2. Males were more likely to persist than females. Of the 1,625 males in the Study Population, 571 persisted to graduation by the Fall semester of 1981; an additional 138 persisted but failed to graduate for a combined persistence rate of 42.6 percent. Among the 1,541 females there were 562 persisters, 435 graduates and 127 non-graduates, for a combined persistence rate of 36.4 percent.

3. Graduates and persisters were on the average slightly younger. As might be expected, they also had higher average high school ranks, ACT composite scores and first semester grade point averages.

4. Student persistence by academic major varied widely. Table 3 provides information on persistence and graduation by academic major. Among those majors enrolling more than 75 students, the highest combined rates of persistence and graduation were recorded by: Engineering (55), Architecture (52), Biological Science (45), Business (44), Communication (41), and Health Science (40). The lowest combined rates of persistence and graduation were found in: Fine Arts (29), Undecided (32), Education (33), Language and Humanities (35), and Psychology (36).

5. Asians achieved the highest combined persistence rate with nearly 63 percent having graduated or

continuing to pursue a degree four years after entry. Consistent with other studies, they were followed in order by Whites, Hispanics, Blacks and American Indians. Table 4 provides persistence and graduation rates by ethnicity.

6. Even when the effects of differences in sex ratios and academic ability are controlled, significant differences remain in persistence rates among ethnic subpopulations. Table 5 provides information similar to Table 4 except that the comparisons for the minority subpopulation are with a sample of the White subpopulation matched for gender and first semester grade point average.

7. Class rank is an important predictor of persistence and graduation at Arizona State. Table 6 provides information about this relationship.

8. While there is some relationship between ACT composite scores and persistence, the relationship is not nearly as strong as the one for rank in high school graduating class. In fact, if ASU should do away with the use of test scores for admission, as has been advocated by some groups, it does not appear that the loss would have much impact on the ability of the University to select students who would persist and graduate.

9. First semester grade point average appears to be a powerful indicator of students requiring assistance to persist. Only 18 percent of the 704 students achieving less than a 2.0 GPA the first semester had persisted or graduated 5 years later. In contrast, 52 percent of those achieving a 2.5 or higher GPA in the first semester had persisted or graduated by the end of this study.

Discussion

A combined persistence rate of less than 50 percent is not unusual for large, urban universities of moderate selectivity. The lower persistence rates for females, American Indians, Blacks and Hispanics, have also been noted elsewhere (see, for example, Ramist, 1981). The central question this study poses is whether Arizona State should be satisfied that it is no worse off than many other institutions of its type.

In 1980-81, the academic performance of student athletes became an issue. A study by Parker (1981) calculated a four-year persistence rate (persistence was defined as enrollment for eight consecutive semesters) for a sample of full-time students entering in the Fall semesters of 1976 and 1977. For all scholarship

athletes entering as freshmen in the same semesters, the comparable persistence rate was 37.5 percent. These figures are consistent with the findings of this study. The experience with student athletes suggests that persistence and graduation rates can be improved by institutional action even where students are confronted with heavy outside demands on their time. If the University should decide that keeping more of the students who are already enrolled constitutes an attractive alternative to recruiting more new students, this study suggests a number of approaches that may be profitable to explore.

1. Previous academic performance and first semester GPA are the most important indicators of probable student attrition. What University programs exist to capitalize on this information by providing necessary assistance? How do students find out about these programs? How helpful are they rated by students who use them?

2. Some academic majors appear much more successful than others in retaining and graduating students. What practices differentiate the more from the less successful? How can departments with poor records of student persistence or graduation improve their retention rates without impairing academic standards? Is improved faculty advising one possibility?

3. Students who come to the university without clear academic objectives fall into the highest risk category. What can be done to assist them in choosing a major before they become discouraged and leave?

4. The University's commitment to affirmative action has been more evident in persuading minorities to enroll than in helping them to persist or graduate. What coordinated programs exist to address the needs of minorities? How do students find out about these programs and how do those who use them evaluate their effectiveness? NOTE: The problems of academic success for ethnic minorities is national in scope. Little is known about variables that may have a bearing on improving chances of academic success for ethnic minorities. Currently, the Department of Higher and Adult Education has underway a series of five coordinated studies to develop information in depth about the correlates of academic success for ethnic minorities through interviews with persisters and non-persisters.

5. Gender is also an important factor in persistence. What are the factors that cause women to persist at lower rates than men? How can this information be used to devise effective interventions?

It is much easier to raise questions than it is to provide answers. However, if the University is interested in improving the persistence and graduation rates of its students, the questions may be more important than any particular answer. The fact that this is the first study of its type to be completed at ASU reflects the absence of concern about attrition appropriate to a rapidly growing university with a seemingly inexhaustible supply of new students.

At the same time, the picture is also one of an apparently well qualified student body performing at a level significantly below that which characterizes their counterparts in the quality universities, ASU seeks to emulate. The combination of a desire to improve quality of the educational program along with the declining rate of growth, suggest that the time to take a new look at student persistence at Arizona State may be at hand. This study has been designed to stimulate and assist the process.

Table 1

CHARACTERISTICS OF THE STUDY POPULATION

Number	3166
Gender:	
% Male	51.3
% Female	48.7
Ethnicity:	
% Black	3.5
% White	86.4
% American Indian	2.1
% Hispanic	4.9
% Asian	1.1
% Not Reported	2.0
Residency Status:	
% Resident	55.2
% Non-resident	44.8
Average Age:	17.5
Average Rank in High School Graduating Class: (% from the top)	23.5
Average ACT Composite Score:	21.1
Average First Semester GPA:	2.47

Table 2

CHARACTERISTICS OF THE STUDY POPULATION
DISAGGREGATED BY PERSISTENCE STATUS

	Non-persisters	Persisters	Graduates
Number	1895	265	1006
% of Total	60.0	8.0	32.0
Gender:			
% Male	48.3	52.1	56.8
% Female	51.7	47.9	43.2
Ethnicity:			
% Black	4.5	4.9	1.3
% White	84.3	81.9	91.5
% American Ind.	2.8	3.8	0.4
% Hispanic	5.6	5.3	3.3
% Asian	0.7	1.9	1.7
% Not Reported	2.1	2.3	1.9
Residency Status:			
% Resident	53.0	64.9	56.9
% Non-resident	47.0	35.1	43.1
Average Age:	17.7	17.2	17.2
Average Rank in H. S. Graduating Class: (% from the top)	26.3	20.9	16.3
Average ACT Composite Score	20.9	22.5	21.4
Average First Semester GPA:	2.25	2.86	2.78

Table 3

PERSISTENCE AND GRADUATION BY ACADEMIC MAJORS

Academic Major	Total	Non-Persisters N	(%)	Persisters N	(%)	Graduates N	(%)
Agriculture	42	22	(52)	5	(12)	15	(36)
Architecture	121	58	(48)	10	(8)	53	(44)
Biological Sc.	149	83	(56)	16	(11)	50	(34)
Business	626	349	(56)	69	(11)	208	(33)
Communication	135	79	(59)	34	(25)	22	(16)
Comp. Sc.	31	20	(65)	10	(32)	1	(3)
Education	221	148	(67)	8	(4)	65	(29)
Engineering	236	107	(45)	9	(4)	120	(51)
Fine Arts	262	185	(71)	24	(9)	53	(20)
Health Sc.	215	128	(60)	26	(12)	61	(28)
Home Ec.	43	22	(51)	0		21	(49)
Lang. & Hum.	84	55	(65)	0		29	(35)
Mathematics	47	27	(57)	1	(2)	19	(40)
Physical Sc.	56	27	(48)	8	(14)	21	(38)
Psychology	92	59	(64)	14	(15)	19	(21)
Soc. Work & Rec.	41	27	(66)	1	(2)	13	(32)
Social Sc.	247	159	(64)	1	(-)	87	(35)
Technology	63	33	(52)	6	(10)	24	(38)
Undecided	455	307	(67)	23	(5)	125	(27)

Table 4

PERSISTENCE BY ETHNICITY

Status	Asians		Whites		Hispanics		Blacks		American Inds.	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Graduates	17	(49)	920	(34)	33	(21)	13	(12)	4	(6)
Persisters	5	(14)	217	(8)	14	(9)	13	(12)	10	(15)
Non-Persisters	13	(37)	1597	(58)	107	(70)	85	(77)	54	(79)
Combined Rate of Persistence		(63)		(42)		(30)		(24)		(21)

Table 5

PERSISTENCE BY ETHNICITY WITH CONTROLS FOR GENDER AND ACADEMIC ABILITY

Status	Whites	Hispanics	Blacks	American Inds.
	%	%	%	%
Graduates	29	21	12	6
Persisters	6	9	12	15
Non-Persisters	65	70	77	79
Combined Rate of Persistence	35	30	24	21

Table 6

PERSISTENCE BY RANK IN HIGH SCHOOL
GRADUATING CLASS

Status	Upper 10%		Upper 30%		Upper Half		Lower Half	
	N	%	N	%	N	%	N	%
Graduates	405	(41)	733	(37)	903	(34)	47	(17)
Persisters	107	(11)	174	(9)	233	(9)	28	(10)
Non-persisters	478	(48)	1059)	(54)	1525	(57)	203	(73)
Combined Rate of Persistence		(52)		(46)		(43)		(27)

Table 7

ACT SCORES

Status	Above 20		16-20		Below 16	
	N	%	N	%	N	%
Graduates	608	34	237	35	120	31
Persisters	176	10	34	5	30	8
Non-persisters	1022	57	411	60	233	61
Combined Rate of Persistence		(44)		(40)		(39)

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